CLAIMS

We claim:

1. A method for lowering plasma CRP levels comprising administering to a mammal, in need thereof,

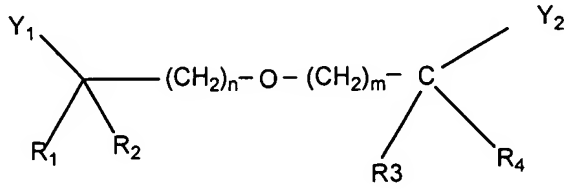
an effective amount of a dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl:

or a pharmaceutical composition of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl.

2. A method according to Claim 1 wherein the mammal is a human.

3. A method according to Claim 2 wherein the compound inhibits proinflammatory cytokine induced CRP production.

4. A method for lowering plasma CRP levels comprising administering to a mammal, in need thereof, an effective amount of a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;
and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl;

or a pharmaceutically acceptable salt thereof.

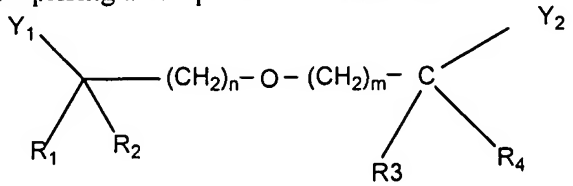
5. A method according to Claim 4 wherein the mammal is a human.

6. A method according to Claim 5 wherein the compound inhibits proinflammatory cytokine induced CRP production.

7. A method according to Claim 4 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

8. A method according to Claim 7 wherein the mammal is a human.

9. A method for lowering plasma CRP levels comprising administering to a mammal, in need thereof, an effective amount of a pharmaceutical composition comprising a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;
and where the alkyl, alkenyl, and alkynyl groups may be substituted with

one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl,

or a pharmaceutically acceptable salt thereof;

and a pharmaceutically acceptable diluent, carrier, or excipient.

10. A method according to Claim 9 wherein the mammal is a human.

11. A method according to Claim 10 wherein the compound inhibits proinflammatory cytokine induced CRP production.

12. A method according to Claim 9 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

13. A method according to Claim 12 wherein the mammal is a human.

14. A method for reducing systemic inflammation comprising administering to a mammal, in need thereof,

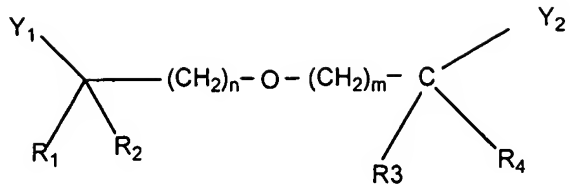
an effective amount of a dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl:

or a pharmaceutical composition of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl.

15. A method according to Claim 14 wherein the mammal is a human.

16. A method according to Claim 15 wherein the compound inhibits proinflammatory cytokine induced CRP production.

17. A method for reducing systemic inflammation comprising administering to a mammal, in need thereof, an effective amount of a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;

and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl, or a pharmaceutically acceptable salt thereof.

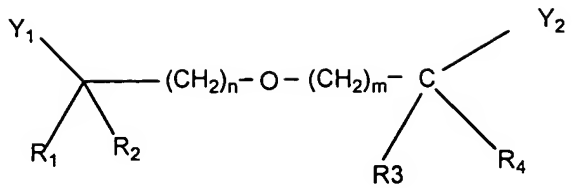
18. A method according to Claim 17 wherein the mammal is a human.

19. A method according to Claim 18 wherein the compound inhibits proinflammatory cytokine induced CRP production.

20. The method according to Claim 17 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

21. A method according to Claim 20 wherein the mammal is a human.

22. A method for reducing systemic inflammation comprising administering to a mammal, in need thereof, an effective amount of a pharmaceutical composition comprising a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;

and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl,

or a pharmaceutically acceptable salt thereof;

and a pharmaceutically acceptable diluent, carrier, or excipient.

23. A method according to Claim 22 wherein the mammal is a human.

24. A method according to Claim 23 wherein the compound inhibits proinflammatory cytokine induced CRP production.

25. A method according to Claim 22 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

26. A method according to Claim 25 wherein the mammal is a human.

27. A method of inhibiting proinflammatory cytokine induced CRP production in a mammal, in need thereof, comprising administering to the mammal;

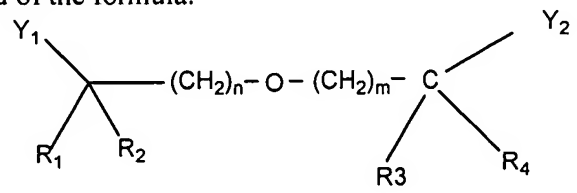
an effective amount of a dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether,

substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl:

or a pharmaceutical composition of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, substituted-alkyl, or a pharmaceutically acceptable salt of the dialkyl ether, substituted alkyl, substituted aryl-alkyl, substituted dialkyl thioether, substituted dialkyl ketone, or substituted-alkyl.

28. A method according to claim 27 wherein the mammal is human.

29. A method of inhibiting proinflammatory cytokine induced CRP production in a mammal comprising administering to a mammal an effective amount of a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;

and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl,

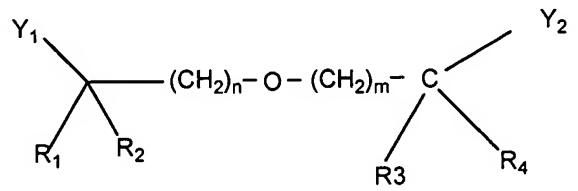
or a pharmaceutically acceptable salt thereof.

30. A method according to claim 29 wherein the mammal is a human.

31. A method according to Claim 29 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

32. A method according to claim 31 wherein the mammal is a human.

33. A method of inhibiting proinflammatory cytokine induced CRP production in a mammal comprising administering to a mammal an effective amount of a pharmaceutical composition comprising a compound of the formula:



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wherein

n and m independently are integers from 2 to 9;

R_1, R_2, R_3, and R_4 independently are C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, and R_1 and R_2 together with the carbon to which they are attached, and R_3 and R_4 together with the carbon to which they are attached, independently can complete a carbocyclic ring having from 3 to 6 carbons;

Y_1 and Y_2 independently are COOH, CHO, tetrazole, and $COOR_5$ where R_5 is C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, substituted alkyl, alkenyl, or alkynyl;

and where the alkyl, alkenyl, and alkynyl groups may be substituted with one or two groups selected from halo, hydroxy, C_1-C_6 alkoxy, and phenyl,

or a pharmaceutically acceptable salt thereof;

and a pharmaceutically acceptable diluent, carrier, or excipient.

34. A method of claim 33 wherein the mammal is a human.

35. A method of claim 33 wherein the compound is 6,6'-oxybis(2,2-dimethylhexanoic acid) or a pharmaceutically acceptable salt thereof.

36. A method of claim 35 wherein the mammal is a human.